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Studies in Sisyrinchium—IX: The Species of Texas and the Southwest

By Eugene P. Bicknell

The present paper has to do primarily with the blue-eyed grasses of Texas but, for convenience, it is made to embrace as well the species known from the adjoining states and territories including also Arizona. In all some twenty-five species are recognized from this general southwestern region seventeen of which are proposed as new. It may safely be said, however, that this enumeration is far from complete, for the lack of any specimens from many sections of the region, as well as the evidence afforded by fragmentary material here passed over, allows little doubt that the number of species actually occurring is materially greater than yet appears. Very few specimens have come to hand from Arizona and New Mexico, and still fewer from the extreme western and southern boundaries of Texas. From the latter state seventeen species can be recorded, and there is little doubt that at least three other known species occur, these being *S. demissum* Greene, to be expected in the extreme northwestern part of the state, *S. albidum* Raf., in the northeastern part, and *S. campestre* in the northwestern and northern section.

The Texan species taken as a group present several noteworthy features of botanico-geographical interest. Not only do none of the distinctly Texan species, as far as appears, extend for any distance beyond the borders of the state to the north or east, but, conversely, very few of the more northern or eastern forms cross the Texan border, and not one of them for any great distance.

Between the Texan and Mexican species a similar mutual exclusion appears to obtain, and in some considerable collections of Mexican species which have passed under notice not a single species known from Texas has been encountered. It is scarcely to be expected, however, that there is not some interchange of species along the border. It may also be noted that no species occurring in Texas appears to be generally distributed throughout the state.

Owing to the present insufficiency of material perhaps no one of the species here described can be held to be well understood. Nevertheless I entertain not the least doubt that, with one or two possible exceptions, all the species here recognized are perfectly distinct. Indeed there is much reason to believe that several of them will be found to include more than one species. Until both flowers and fruit of all can be studied comparatively, many questions of this kind must remain unanswered. On account of the present insufficiency of material, also, the appended "key" must be regarded as wholly tentative. It is, in fact, extremely unsatisfactory, and is offered more as a help to the determination of those species which announce themselves by unmistakable characters rather than as a certain index to all.

The noteworthy *Sisyrinchium Arizonicum* Rothrock * is not included in this treatment for the reason that it deviates so widely from true *Sisyrinchium* as understood in this series of papers that I am obliged to regard it as the type of a distinct genus. For this species, therefore, as well as for the allied *S. platyphyllum* Watson † of Mexico a new genus may be proposed to be called **Oreolirion.**

Key to the Sisyrinchia of Texas and the Southwest

Stem normally simple and scapose, with terminal spathe or spathes.
- Filaments distinct at top of stamen-tube; both bracts of spathe foliaceous. 1. *S. exile.*
- Filaments completely united; inner bract of spathe not foliaceous.
 - Scapes straight, more or less distinctly flattened and winged or margined.
 - Spathes solitary.
 - Plant pale and glaucous; inner scales half the length of bracts or less. 2. *S. campestre.*
 - Plant not glaucous, drying dark; inner scales equalling the shorter bract or nearly so. 3. *S. sagittiferum.*
 - Spathes two together.
 - Plant not glaucous, drying dark; inner scales equalling the second bract or nearly so. 3. *S. sagittiferum.*
 - Plant more or less glaucous, not drying dark; inner scales much shorter than second bract. 4. *S. albidum.*
 - Scapes wiry, flexuous and subterete, narrowly margined (sometimes branched); spathes subterete below. 5. *S. biforme.*

Stem normally branched or bearing terminal peduncles.
- Plants erect or erectly ascending.

* *Sisyrinchium Arizonicum* Rothrock, Bot. Gaz. 2: 125. 1877.

† *Sisyrinchium platyphyllum* S. Watson, Proc. Amer. Acad. 26: 155. 1891.

Leaves less than half the height of the scape; roots much thickened.
6. *S. radicatum.*

Leaves equalling the scapes or nearly so; roots fibrous, never greatly thickened.

Capsules large, 6–7 mm. long.

Leaves mostly smooth-edged; peduncles stout and stiff.
7. *S. macrocarpon.*

Leaves sharp-serrulate; peduncles very long and slender.
8. *S. longipedunculatum.*

Capsules smaller, 3–5 mm. long.

Sides of leaves and stem scabrellous; pedicels slenderly flexuous.
9. *S. pruinosum.*

Sides of leaves and stem smooth (sometimes roughened in Nos. 10, 18 and 20); pedicels not widely flexuous.

Bracts of spathe becoming thickened and strongly rather few-nerved, the mature spathe rather broad and turgid.
10. *S. Texanum.*

Bracts of spathe closely many-nerved.

Plants very pale green and glaucous, mostly stiff.

Edges of leaves and stem normal rough or serrulate; values of capsule with lateral nerves.
11. *S. ensigerum.*

Edges of leaves and stem normally smooth; valves of capsule without lateral nerves.

Leaves mostly 2–4 mm. wide; perianth 12–15 mm. long, column 6–8 mm. long.
12. *S. amethystinum.*

Leaves mostly 1–2 mm. wide; perianth 7–10 mm. long, column about 5 mm. high.
13. *S. demissum.*

Plants not very pale and glaucous or usually turning dark or discoloring when dry.

Leaves mostly over 2 mm. wide; plants 15–30 mm. high.

Glaucous to glaucescent; scape narrowly firm-winged; perianth light blue; pedicels exserted.
14. *S. varians.*

Green to glaucescent; scapes narrowly firm-winged; parianth deep blue-purple; pedicels scarcely exserted. 15. *S. amoenum.*

Green; scape broadly thin-winged; pedicels slenderly exserted and spreading.
16. *S. graminoides.*

Leaves mostly under 2 mm. wide; plants 5–20 cm. high.

Plants green to glaucescent, becoming more or less dark when dry.

Scapes rigid, somewhat curved; perianth bright blue; ovary glabrous.
17. *S. Brayi.*

Scapes straight, not rigid; ovary puberulent.
Leaves shorter than the scapes; flowers deep purple-blue; column half the length of perianth or less.
18. *S. furcatum.*
Leaves equalling the scapes or longer; flowers pale blue; column half the length of perianth or more.
19. *S. Langloisii.*
Plants pale or glaucescent, discoloring little when dry; small closely tufted species.
Leaves 1–2 mm. wide; flowers pale blue; column 4–6 mm. high; ovary puberulent to glabrate. 20. *S. Bushii.*
Leaves about 0.5 mm. wide; flowers deep blue; column 3 mm. long; ovary glabrous.
21. *S. Canbyi.*
Plants in finally depressed, spreading or weakly diffuse tufts.
Perianth over 8 mm. long; capsule subglobose.
Leaves 5–7 mm. wide; scape broadly thin-winged.
22. *S. colubriferum.*
Leaves 0.5–3 mm. wide; scapes narrowly margined.
Rather stiffly spreading or ascending; inner bract mostly the longer; ovary puberulent. 23. *S. Helleri.*
Diffuse to weakly erect; outer bract usually the longer; ovary glabrous. 24. *S. flaccidum.*
Perianth less than 6 mm. long; capsule oblong; plants branched and leafy-bracted from the base. 25. *S. minus.*

1. **Sisyrinchium exile** sp. nov.

From 3–8 cm. high in diminutive tufts of one to few erect stems within a cluster of ascending leaves; dull pale green and glaucescent, discoloring somewhat when dry; roots pale and exceedingly delicate, more or less fibrillate. Larger leaves equalling or surpassing the stems, 0.75–1.5 mm. wide, narrowed to the obtusely-pointed or acute apex, firm, but rather thin and weakly few-nerved, the edges smooth or nearly so or sometimes minutely ciliolate towards the tip, their bases membranously broadened and with conspicuouly white-hyaline edges; stems simple with terminal spathe, 1.5–6.5 cm. high, less than 1 mm. wide, very narrowly firm-margined, smooth-edged; spathes erect and narrow, sometimes longer than the supporting stem, both bracts foliaceous and prolonged, the outer one 20–28 mm. long, much surpassing the more attenuate inner one, narrowly white-hyaline below and connate for about 3 mm. at base; inner scales silvery-white, less than half the length of the shorter bract: flowers few on hair-like pedicels, much shorter than the bracts and early recurved from

midway in the spathe; perianth very small and delicate, about 5 mm. long, rather broadly seated on the ovary around the point of attachment, appearing pale yellowish but bluish towards the ends of the segments or becoming so, the obscurely nerved segments aristulate; stamineal column 1.5–2 mm. high, the filaments free at the tip for about 0.5 mm. and slightly diverging; anthers less than 0.5 mm. long, short and broad; base of column dilated and puberulent; immature capsule trigonous-subglobose, 2 mm. high, sparsely puberulent to glabrate.

Sandy sea shores at Galveston, Feb. 25, 1890, J. E. Bodin, herb. Univ. of Minn. and U. S. Nat. herb.

A remarkable little plant, strictly speaking not a true *Sisyrinchium*, appearing to represent a transition to the genus *Hydastylus*.

3. SISYRINCHIUM SAGITTIFERUM Bicknell, Bull. Torr. Club, **26**: 230. 1899

Firmly erect in scant tufts 10–30 cm. high, slightly or densely short-fibrillose at base, dull green, sometimes slightly glaucescent, drying dark; roots clustered, simple, at first slender but becoming almost tuberous-thickened on vigorous plants. Leaves often equalling the stems, rather thin but firm, 0.5–3 mm. wide, tapering-acute or aculeate with finally indurated tip, closely fine-striate, the edges smooth to fine-serrulate, the margins of the conduplicate base noticeably white-hyaline: stem scapose and leafless, varying from setaceously slender to 1.5 mm. or even 2 mm. wide, the fine-striate wing margins smooth to aculeately-denticulate, perceptibly widened into the base of the spathe; spathes single, or on vigorous plants two together within a subtending leafly bract, sessile or the outer one sometimes stipitate, often purplish, flat, sometimes bent backward, the stiff bracts rather strongly few-nerved, the outer one slenderly attenuate, varying from 1.5–3 cm. long in single spathes to 7 cm. when subtending geminate spathes, the narrowly white-hyaline margins separated quite to the base; inner bract 10–17 mm. long, broadened and often abruptly emerging from the base of the outer one, broadly white-hyaline, the apex mostly scarious obtuse, or truncate or even emarginate with excurrent mid-vein; inner scales brownish-tinged, mostly ¾ the length of the shorter bract; flowers rather small on hair-like, more or less flexuously exerted pedicels; perianth thinly membranous and finely nerved, violet or sometimes white, 8–10 mm. long, the segments mostly emarginate, slenderly aristulate; column 4–5 mm. high; anthers relatively large, 1.5–2 mm. long; ovary sparsely puberulent; capsules on more or less spreading or recurved pedicels, subglobose, 3–6 mm. high, developing obscure lateral nerves.

Texas and Louisiana in woodlands or dry pine woods; flowering from early March to April.

TEXAS: May 1, 1839, Dr. Riddell.

LOUISIANA: Hale, Gray herb.; Lake Charles, March 24, 1900, B. F. Bush; Central, March 14, 1900, Biltmore herb.

Specimens of this species received since the type was described show that the latter represents a small form of the species which, in its fullest development, takes on a notably different appearance. Plants essentially like the type, but even smaller and more narrow leaved and having white flowers, were collected by Mr. B. F. Bush at Lake Charles, Louisiana, March 4, 1900. On April 4th the same year, at Central, Louisiana, the species was collected for the Biltmore Herbarium which has submitted to me a beautiful sheet of specimens. These differ remarkably from the smaller plants referred to in much greater size, more fibrous base, clustered subtuberous roots, almost uniformly twin spathes with greatly elongated subtending bract and violet flowers. The numerous specimens, however, exhibit much variation, and I find among them nothing inconsistent with the view that they represent a robust state of the species hitherto known only from the diminutive type specimen.

The species appears to fall into a group with *S. albidum* and *S. scabrellum*.

5. **Sisyrinchium biforme** sp. nov.

Growing in scant, erect tufts 20–40 cm. high, from stout simple roots; pale green and glaucescent. Leaves slender and very acute, less or more than half the height of the stem, narrow, 1–1.5 mm. wide, prominently close-nerved, the edges smooth or nearly so; stem either scapose, with terminal spathe, or with one to three terminal peduncles, slender but stiff, sinuously erect or straight, 1–1.5 mm. wide, smooth and subterete, the margins sometimes almost obsolete; bracteal leaf slender and erect, shorter than the peduncles; peduncles usually slightly curved, 5–7 cm. long, two-edged; spathes narrow, especially the subterete base, variable in length, from 13 mm. to over 30 mm. long, the stiff bracts strongly close-nerved and cuspidate-acute, the inner one mostly surpassing the outer and flattened-navicular with incurved apex, the outer one tapering above, tubular-clasping for 5–9 mm. at base; inner scales crowded, brownish-tinged, but little shorter than the bracts: capsules on erect pedicels 15–25 mm. long, usually

a little exceeding the bracts, brown, large, 5–7 mm. long, broadly oblong, many-seeded; seeds 1–1.25 mm. in diameter, globose or obovoid, coarsely and prominently pitted, distinctly umbilicate.

Based on a single collection by Drummond from San Felipe, Texas, now in the Gray herbarium.

A marked species apparently needing no comparison with any other.

6. **Sisyrinchium radicatum** sp. nov.

Erect, rather stout and rigid, pale and glaucous, from 30–45 cm. or more high; roots in a dense cluster from short woody rootstocks, soft and thick, giving off slender fibrils. Basal leaves mostly distinctly equitant in a short stiff cluster, a few longer ones sometimes half the height of the stem, 2–3 mm. wide, somewhat membranously broadened and hyaline-margined at base, stongly close-nerved, acute with hardened tip, the edges smooth; stem stiff, 2–4 mm. wide, very narrowly firm-margined, the edges smooth or obscurely roughened near the nodes; nodes mostly two, developing stiff bracteal leaves, shorter than the 1–4 peduncles; peduncles 5–10 cm. long, more or less divergent and unequal, smooth-edged and obscurely denticulate; bracts of spathe subequal, acute, 17–22 mm. long, somewhat membranous, distinctly fine-nerved, white-hyaline nearly to the tip, the outer one united below for about 5 mm.; inner scales three-quarters the length of the bracts or more; flowers violet-blue, on slender, slightly exserted pedicels, perianth about 10 mm. long, the segments short-aristulate; stamineal column 5 mm. high, anthers about 1.5 mm. long; ovary and young capsule densely glandular-puberulent.

Southwestern Utah, St. George, Washington county, 1877. Dr. Edward Palmer, no. 456 in herb. College of Pharmacy, N. Y., and herb. Gray. More nearly related to some of the California species than to any of the Texas group.

7. **Sisyrinchium macrocarpon** sp. nov.

Similar to stouter forms of *S. ensigerum*, but stouter, stiffer and less branched, with larger spathes, smaller flowers and larger capsules.

Very glaucous and pale, not changing color when dry, erect, from 20–30 cm. high; leaves over half the height of the stem, 2.5–4 mm. wide, thick and very firm and stiff, strongly close-nerved, very acute with hardened tip, the edges smooth or obscurely denticulate-roughened; stems 3 mm. or less wide, narrowly margined,

the edges finely cartilaginous-ciliolate; node one, bearing two rigid, suberect peduncles 6–8 cm. long, and a stiff subtending leaf of about equal length, strongly nerved and ancipital at base; peduncles about 1.5 mm. wide, ciliolate; bracts of the spathe unequal, carinate and ciliolate, the outer one herbaceously prolonged and very acute, 2.5–4 cm. long, united for 5–8 mm. at base, rather broadly white hyaline below the middle; inner bract 2–2.5 cm. long. the tip acute and somewhat incurved; scales about three-quarters the length of inner bract; flowers few, 2–5, about 8 mm. long, the segments rather narrow, short-aristulate, non-emarginate; staminal column 4–5 mm. high, anthers 1 mm. or more long; ovary and capsule puberulent, the latter on rather stout, erect pedicels, pale brown, broadly oblong or subglobose, 5–7 mm. high, the thickish valves sparsely venose.

ARIZONA: Willow Spring, June 10–20, 1890, Dr. Edward Palmer, no. 490a, U. S. Nat. herb.

The flowering time is rather earlier than that of *S. demissum* Greene and much earlier than that of *S. amethystinum*, both of which occur in the same region.

8. **Sisyrinchium longipedunculatum** sp. nov.

Pale green and glaucescent, erect, about 50 cm high, the simple roots rather few and coarse. Leaves dry and stiff, erect, more than half the height of the plant, 2–4 mm. wide, firmly close-nerved, slenderly attenuate and very acute, the rather sharp edges upwardly close-serrulate: stems solitary or few, 2.5 mm. wide, stiff and somewhat flexuously curved, the wing margins sharp-serrulate; bracted leaf much shorter than the two very long slender peduncles; peduncles sometimes 18 cm. long, about .75 mm. wide, subterete, the very narrow margins smooth or obscurely serrulate; spathes very narrow, almost subterete and but 1.5 mm. wide towards the base, the stiff, obscurely nerved bracts, tapering to the apex, almost cuspidate-acute; inner bract 2.6 cm. long, a little surpassing the outer one which is very narrowly hyaline on the margins below and united-clasping for nearly 7 mm. at base; scales silvery white, but little shorter than the bracts: capsules pale brown on nearly erect pedicels about 30 mm. long, obovoid-oblong, large, becoming 7.5 mm. high, the valves sparsely venose; seeds 2–5 in each cell, large, 1.5–2 mm. in longer diameter, irregularly obovoid or obovoid-oblong and angled, some of them compressed and narrowly umbilicate, black, at first finely rugulose, at length smooth and somewhat shining.

Described from a single specimen in U. S. Nat. herb., collected

by Dr. Valery Havard, on top of Guadaloupe Mountains, Texas, October, 1881.

A peculiar species differing markedly from any other known to me. In size of fully developed capsules and seeds and length of peduncles it appears to exceed any other North American species.

9. **Sisyrinchium pruinosum** sp. nov.

Loosely erect or ascending, 15–25 cm. high, rather bright green and glaucescent, but little duller when dry, roots simple and slender. Leaves about three-quarters the height of the plant, 1–3.5 mm. wide, the stem-leaves often the broadest, usually perceptibly constricted above the conduplicate base, rather thin and lax, the edges smooth, the sides with those of the stem, peduncles and bracts more or less closely fine-roughened with minute white points, under a lens appearing as if covered with hoar-frost; stems 1–2.5 mm. wide, narrowly margined to rather broadly thin-winged; nodes 1–2, the first one usually low on the stem; peduncles 2–3, erectly ascending, straight and slender, 5–12 cm. in length, often longer than the proper stem; spathes narrow, the bracts slenderly sharp-attenuate, the usually longer outer one 15–30 mm. long, delicately many-nerved, the white-hyaline margins united for 3–5 mm. at base; scales silvery-white and brownish-tinged, equalling the inner bract or shorter; flowers on hair-like slenderly much-exserted and flexuously-recurved pedicels; perianth violet-blue with a broad pale-yellow center; segments 10 mm. or more long, short-aristulate; column 5 mm. high; anthers about 1.5 mm. long; ovary glabrous.

Dallas, Texas, April 13, 1900. B. F. Bush, no. 561, "common in woods"; no. 709, much more slender, "common on prairie."

10. **Sisyrinchium Texanum** sp. nov.

Erect or ascending, 12–25 cm. high, dull green and glaucescent showing more or less discoloration when dry, the bracts and nodes mostly purplish tinged, tufts thinly loose-fibrillose at base, the numerous roots simple and slender. Leaves equalling the height of the plant or nearly so, somewhat withering-persistent, 1–2.5 mm. wide, tapering-acute or aculeate, the extreme tip becoming indurated, firmly close-striate, the edges smooth to obscurely denticulate; stems from less than 1 mm. to 2 mm. wide, the narrow margins either smooth or strongly denticulate; node mostly one supporting a slender erect leaf mostly longer than the two or three subequal or unequal erectly diverging peduncles; peduncles 5–11 cm. long, slender, smooth to denticulate, the margins broadened

into the base of the spathe ; spathes rather short and broad, usually broadest near the base, becoming pale and somewhat turgid and obscurely nerved on the sides, the edges keeled ; bracts stiff, strongly but rather distantly nerved or becoming so, the outer one varying from stiffly attenuate and longer than the inner to subequal with it and merely acute, united-clasping for about 2 mm. at base ; inner bract usually very obtuse and scarious at the apex, about 15 mm. long ; inner scales equalling the shorter bract or nearly so, brownish-tinged ; flowers on erect slightly exserted pedicels ; perianth light violet-blue, 10–15 mm. long ; column 4–5 mm. high ; anthers about 1.5 mm. long ; ovary obscurely puberulent to glabrate ; capsules thick-walled, dark brown, 3–5 mm. high, broadly oblong to subglobose the often apiculate valves bearing a pair of submarginal veins ; seeds rather numerous in each cell, not seen when fully mature, less than 1 mm. in diameter, close-pitted.

Eastern Texas to Louisiana flowering in March and April.

A variable plant perhaps including more than one species. In reduced examples some of the stems may be simple with terminal spathe ; a few stout specimens show the base of the bracteal leaf distinctly roughened with minute points along the nerves.

A specimen in the Gray herbarium, mounted on a sheet of Elihu Hall's collection forming the type, has every appearance of being distinct and is only provisionally referred here, not being included in the description. The larger leaves which equal the height of the plant are over 35 cm. high and nearly 5 mm. wide ; the stems bear a short outcurved branch above with a cluster of rather short peduncles ; the spathes are peculiarly thick and blunt, with the inner bract broadly obtuse, in some cases surpassing the obtuse or apiculate outer one.

TEXAS : Houston, Elihu Hall, no. 636, April 12, 1872 ; type in herb. N. Y. Bot. Gard., N. Y. College of Pharmacy, Mo. Bot. Gard., U. S. Nat. Mus. ; Houston, Lindheimer, 1840, 1812, Mo. Bot. Gard. ; Lindheimer, 1842, herb. Gray ; Pierce Junction, March 16, 1876, J. J. Good, herb. Mo. Bot. Gard. ; April 2, 1899, B. F. Bush, no. 32, " Common on prairies " ; Virginia Point, opposite Galveston, April 20, 1899, Prof. W. L. Bray ; Hockley, J. W. Thurow, 1893, herb. U. S. Nat. Mus. ; April, 1839, Lindheimer, herb. Mo. Bot. Gard.

LOUISIANA : Dr. Hale, herb. Torrey.

11. **Sisyrinchium ensigerum** sp. nov.

Stiff, and very pale glaucous-green, mostly remaining pale when dry, 15–30 cm. or becoming 40 cm. high, the slender roots simple and wiry. Stems few, rigid, erect or divergently outcurved, mostly longer than the peduncles, when outcurved usually geniculate midway at the node, when erect often developing two approximate branches, 1.5–3.5 mm. wide, the firm wing-margins striate and rough-serrulate or even cartilaginous ciliolate; peduncles 2–4, approximate or diverging, 5–13 cm. long, mostly 1–2 mm. wide, the wing-margins erose-denticulate to serrulate; basal leaves usually over half the height of the plant, stiff and more or less ensiform and outcurved to straight and erect, 1.5–4 mm. wide, firmly close-nerved, the edges usually fine-serrulate, at least towards the very acute apex; stem-leaves firm and erect, more or less ensiform, tapering-acute, longer or shorter than the peduncles, the united base prominently strong-nerved and oppositely bicarinate; spathes mostly 2–2.5 cm., long, sometimes larger and stouter, broadly flattened or narrow, the stiff thickish bracts strongly nerved, mostly stiffly attenuate and acute, the slender tips often outcurved, the keels serrulate, subequal or the outer one longer, the latter usually widened below and connate for 2–4 mm. at base, narrowly white-margined; scales silvery-white, about three-quarters the length of the bracts: flowers on slender pedicels equaling or longer than the bracts, erect or slightly spreading above; perianth rather pale violet-blue, 10–15 mm. long, the rather broad segments rounded or slightly retuse at the apex and short aristulate; staminal column 4.5–5.5 mm. high; anthers small and pale, 1–1.5 mm. long; ovary glandular-puberulent; capsules, when not fully mature, 2.5–5 mm. long, obovoid-subglobose, pale and rather thick-walled, the valves developing lateral veins.

From south-central to northeastern Texas, flowering in March and April.

Bexar county, San Antonio, G. Jermy, type in Biltmore herb.; V. Havard, April, 1884, herb. Gray; Gillespie county, G. Jermy, herb. Mo. Bot. Gard.; Hamilton county, J. Reverchon, 1885, herb. Gray; Travis county, Austin, April 2, 1898, W. L. Bray; April 18, 1898, A. A. Heller, no. 114; McLennan county, Waco, Sara A. Trimble, 1887, herb. Columbia Univ.; Shackleford county, Holstein, April 10, 1883, herb. Acad. Nat. Sci. Phila.; Young county, Belknap, March, 1858, Sutton Hayes, herb. N. Y. Bot. Gard.; Tom Green county, San Angelo, May 19, 1899, W. L. Bray; G. C. Neally, 1892, no. 103.

The type is stout, stiff and glaucous, with ensiform attenuate leaves and rather large pale flowers, the node borne about midway in the height of the plant, the outer stems somewhat outcurved and geniculate. Other forms, several of which came from the vicinity of Austin, are taller, more slender and erect, the node much above the middle, and with weaker stems and leaves, narrower spathes and smaller flowers. A specimen collected by Heller on bluffs along the Colorado at Austin is tall and slender-branched and bears numerous slender peduncles and narrow spathes; the leaves vary from very narrow to over 5 mm. wide.

Apparently also to be referred here is a single specimen collected by Prof. W. L. Bray at San Angeles "on dry soil among extreme xerophytes" which is low, with narrow, rigid leaves and small spathes, the bracts mostly scarious-obtuse, the inner one mostly the longer, and small flowers.

12. **Sisyrinchium amethystinum** sp. nov.

From 15–45 cm. high, pale green or glaucescent, scarcely discoloring when dry, roots slender, becoming slightly thickened, more or less fibrillate, leaves often numerous, the longer ones sometimes three-quarters the height of the stem, erect, stiffish, many-nerved, smooth-edged, or, when young, ciliolate-serrulate above, 1.5–4 mm. wide, acute, the extreme tip becoming cartilaginous: stem 1–2.5 mm. wide, the narrowly keeled edges smooth or with distant membranous serrulations, node mostly only one, bearing 1–3 long and slender, erectly diverging, mostly unequal peduncles much surpassing the nodal leaves; peduncles 6–18 cm. long, sometimes as long as the stem, mostly 1 mm. or less wide, smooth or slightly serrulate; bracts subequal or the outer one sometimes herbaceously prolonged; inner bract narrowed above, acuminate to scarious obtuse, 15–23 mm. long, outer bract rather broadly white hyaline on the edges below, united-clasping for 5–8 mm., the keels often ciliolate-serrulate, acute or attenuate; scales over half the length of the inner bract; flowers purplish-violet on the herbarium sheet, large; perianth 12–15 mm. long, the segments very abruptly short aristulate or emarginate, column 6–8 mm. high; anthers about 1.5 mm. long; pedicels slender, erect, distinctly exserted, becoming 17–25 mm. long; ovary and young capsule puberulent; capsules pale, subglobose or obovoid, 4–5 mm. high; the valves without lateral nerves; seeds not fully mature but evidently becoming rather large, 1–2 mm. in longer diameter, rugulose.

Arizona, occurring perhaps exclusively at high elevations on the mountains, and ascending to at least 7,500 ft.; flowering from early July to after the middle of August.

ARIZONA: Rincon Mts., 7,500 alt. 1891, G. C. Neally, no, 153; type, U. S. Nat. Mus.; San Francisco Mtn., August 18, 1889, J. H. Knowlton, no. 32; Harts Little Spring, July 8, 1892, J. W. Toumey, no. 430*c*; E. O. Wooton, July 15, 1892; Flagstaff, July, 1891, Dr. D. T. MacDougal, July 2, 1892, J. W. Toumey, no. 420*b*; Mormon Lake, July 17, 1892, J. W. Toumey, no. 430*a*; Bill William's Mtn., alt. 7,000 ft., July 22, 1898, Dr. D. T. MacDougal, no. 321.

This is mostly a taller and stouter plant than *S. demissum*, the broader leaves and stem less discolored in drying, and with much larger flowers on more exserted pedicels, larger seeds and more slender roots. The flowering period is about one month later.

Some specimens bear a close resemblance to specimens of *S. ensigerum*. The two plants are, however, perfectly distinct, the present species differing among other characters in more narrowly margined stem, longer peduncles, decidedly longer stamineal column, and larger capsules, the valves showing no traces of lateral nerves.

13. SISYRINCHIUM DEMISSUM Greene

Growing in narrow erect tufts 15–30 cm. or more high, varying from very pale and glaucous to merely glaucescent, pale yellow or brownish green when dry; roots simple, becoming elongated and somewhat thickened, leaves about half the height of the tufts, sometimes longer, narrow, 1–2.5 mm. wide, mostly attenuate, the acute tip becoming cartilaginous, strongly close nerved or striate, the edges smooth or, toward the tip, cartilaginous-ciliolate: stems slender, often twisted and flexuously curved, narrowly margined, the edges smooth to denticulate or, near the node, cartilaginous-ciliolate; nodes often swollen, mostly only one, when two the lowest one remote and bearing an erect leaf and peduncle; terminal peduncles usually two, very slender, subequal or very unequal, erectly diverging, mostly 4–9 cm. long, usually much surpassing the bracteal leaf; spathes narrow, the bracts stiff and closely striate-nerved, attenuate and often slenderly acute, frequently ciliolate above, subequal, or either one the longer, 13–25 mm. long; outer bract closely united-clasping for 3–9 mm., the lower edges rather broadly firm-hyaline; interior scales silvery white, from half to three-quarters the length of the bracts;

flowers small, pale violet-blue; segments 7–10 mm. long, the midvein often prominent, tapering-aristulate or slightly retuse; column about 3 mm. high; ovary slightly puberulent; capsule subglobose to broadly oblong, pale, corrugate, 4–5 mm. high on stiff erect pedicels shorter than or a little surpassing the bracts; seeds small, 1–1.25 mm. in diameter, obovoid, not umbilicate, finely rugulose to nearly smooth.

New Mexico and Arizona, extending east to western Kansas; ascending to at least 6,500 feet and flowering from early June to the end of July.

14. **Sisyrinchium varians** sp. nov.

Growing in thin or rather scant erect or loosely ascending tufts 15–30 cm. high, light rather dull green and glaucescent, not usually discoloring much when dry; roots simple and slender. Basal leaves usually over three-quarters the height of the plant, erect, but rather thin and soft or becoming firmer, 1.5–4 mm. wide, tapering acute, the rather pronounced nerves at first close but becoming well separated, the edges smooth; stem leaves erect and foliaceous, that from the lower node often surpassing the upper which frequently exceeds the peduncles: stems erect or ascending, mostly longer than the peduncles, 1.5–3 mm. wide, narrowly wing-margined, the edges smooth to denticulate; nodes 1–2, rarely 3, the internode usually closely erect with its leaf and peduncles or peduncle bearing branch; peduncles 2–3, the outer one often slightly outcurved; spathes flattish, rather narrow or sometimes broader and more sharply keeled; outer bract finely many-nerved, straight and narrowly acute or more foliaceous above and somewhat incurved, rarely obtuse, 2–3 cm. long or prolonged to a length of 4 cm. the narrowly white-hyaline edges uniting 2–5 mm. above the base; inner bract 15–25 mm. long, straight and narrowly acute, broader and slightly incurved; scales ¾ the length of the inner bract, brownish-tinged; flowers violet-blue on slender slightly exserted erect or somewhat spreading pedicels; perianth 8–13 mm. long, the segments rounded or slightly emarginate at apex, short-aristulate; column 4–5 mm. high, mostly less than half the length of the corolla; anthers about 1.5 mm. high; ovary glabrous.

An extremely variable plant if not including more than one species. Scarcely any two specimens of my series are closely alike.

Eastern Texas, flowering in March and April. Dallas, April 15, 1900, B. F. Bush, on prairie and in woods; Columbia, March 25, 1900, Wm M. Canby; McLennan county, April, 1888, S. P.

Wright, herb. Columbia Univ. and herb. Gray; Austin, March, 1870, J. E. Bodin, type in U. S. Nat. herb.; A. A. Heller, March 25, 1898, herb. N. Y. Bot. Gard.

INDIAN TERRITORY: Sapulpa, April 28, 1895, B. F. Bush, herb. Columbia Univ., herb. Mo. Bot. Gard.

15. **Sisyrinchium amoenum** sp. nov.

Rather firmly erect and in closely many-stemmed tufts becoming 30 cm. or more high, somewhat yellowish-green and glaucescent, showing much brownish discoloration when dry; roots numerous very slender and elongated. Leaves long and strictly erect but not at all rigid, the longer ones equalling the tufts or nearly so, tapering-acute, 1–3 mm. wide, not very closely fine-nerved, the edges smooth; stems stiff and narrowly firm-winged, 1–2 mm. wide, the edges very smooth to obscurely roughened, usually 2-branched from about the middle, the branches erect or the outer one diverging, each bearing 2–4 mostly shorter peduncles; some stems may bear but one node much above the middle; stem-leaves erect, that from the lower node elongated; peduncles from the upper node relatively short, mostly unequal and somewhat curved, approximate or diverging; spathes mostly 15–18 mm. long, often tinged with reddish-purple, narrowed to the base, the subequal bracts mostly short-attenuate and very acute, very finely close-nerved, the outer with the narrowly white- or purplish-hyaline edges united for about 3 mm. at base; inner scales brownish-tinged, but little shorter than the bracts; flowers on slender erect pedicels subequal with the bracts, rather large, deep purple-blue, the delicately short-aristulate segments becoming 12 mm. long; column 5 mm. or more high; anther orange-yellow, about 2 mm. long; ovary glabrous.

Columbia, Texas, April 1, 1900, B. F. Bush, no. 472.

Proposed as distinct from *S. flaccidum* not without considerable reservation. Nevertheless it seems scarcely possible to reconcile its greater size and strictly erect habit with the diffuse and subspreading character of *S. flaccidum*. It is also relatively much longer-stemmed and more glaucescent, with thicker, more firmly and closely nerved leaves and bracts, shorter, stiffer peduncles, and larger flowers on less exserted pedicels.

It should be noted also that this plant and *S. flaccidum* were collected for distinct species by Mr. Bush, who especially noted its conspicuously larger size and larger flowers. Doubtless the mature fruit of each would settle finally the question of relationship.

17. **Sisyrinchium Brayi** sp. nov.

Growing in stiff tufts of many erectly-ascending stems about 15 cm. high, dull green and glaucescent much darkened when dry; roots simple, becoming stiff and wiry. Basal leaves rather few, the longer ones nearly equalling the tufts, firmly erect or ascending, often somewhat curved, 1–2 mm. wide, narrowly very acute, the edges smooth or minutely denticulate especially towards the apex; stem leaves mostly broader, often incurved, equalling the peduncles or nearly so: stems stiff and narrow especially towards the base, often outcurved below, 1–1.5 mm. wide, narrowly margined, the edges cartilaginous and finely erect-denticulate; nodes 1–2, the lower one mostly below the middle and bearing 1–2 erect peduncles, the internodes often forming a stiff double curve with the lower stem and peduncles; peduncles from the upper node 2–4, usually unequal and diverging or curved, 3–8 cm. long, stiff, and slender, denticulate-roughened or smooth; spathes narrowly oblong, about 1.5 cm. long; bracts mostly subequal, very acute, firmly membranous and finely many-nerved, the keels mostly denticulate-roughened; margins of outer bract conspicuously white-hyaline, united about 3 mm. at base, those of the inner bract broadly white-hyaline nearly to the apex; scales silvery-brownish, but little shorter than the bracts; flowers on erect pedicles subequal with the bracts, violet-blue; perianth about 10 mm. long, the oblong segments delicately firm-nerved, almost subspinulose, short-aristulate, not emarginate; column 3–4 mm. high; anthers nearly 2 mm. long; ovary glabrous; capsules apparently very small and trilobulate, subglobose, the valves definitely trinervate.

Virginia Point, opposite Galveston, Texas, April 20, 1899, Prof. W. L. Bray, "flat coast prairie, making blue patches for many acres."

Apparently between *S. Helleri* and *S. colubriferum*, differing from the former in non-spreading habit, stiffer, less branched stems, shorter pedicels, glabrous ovary and much smaller trinervate capsule. Though most like this species in general appearance the plant seems to be in much closer affinity with the much more diverse appearing *S. colubriferum*. From the latter it differs in lesser size, stiffer, less branched habit, darker color when dry, much narrower and less leafy stems, much narrower and firmer leaves and rather smaller flowers with narrower more firmly nerved and non-emarginate perianth segments.

Named for the collector, Prof. W. L. Bray, who has supplied me with specimens of several of the species here described.

18. SISYRINCHIUM FURCATUM Bicknell, Bull. Torr. Club, **26**: 229. 1899

Firmly erect or erectly ascending in close many-stemmed tufts, 10–20 cm. high, rather bright yellowish-green, turning duller or brownish-green when dry, usually not even glaucescent, purplish about the nodes and bracts in most specimens, becoming slightly fibrillose at base, the roots numerous and slender; leaves numerous, the basal usually over half the height of the stem or longer, 0.5–2 mm. wide, closely and finely striate-nerved, slenderly acute, the edges smooth or sometimes obscurely denticulate-roughened, the sides below sometimes incrustate-roughened with minute harsh points; stem-leaf firmly erect, subequal with the peduncles, the narrow base prominently fine-striate; stems 0.5–1.5 mm. wide, narrowly thin-winged or merely margined, the edges smooth or denticulate-serrulate, the sides smooth or roughened with minute whitish points; peduncles 2–3, slender, mostly 4–6 cm. long, approximate or diverging, smooth or roughened and denticulate; spathes broadest at the middle, 2–3 mm. wide in the pressed plant, mostly 1.5–2 cm. long, the bracts at first thinly membranous and semi-transparent, delicately nerved, acute or acuminate, equal or the outer one slightly the longer, rarely 3 cm. in length, its margin narrowly white or purplish hyaline, united-clasping for 2–5 mm. at base; inner scales brownish tinged, about half the length of the bracts; flowers on erect pedicels little if any longer than the bracts; perianth bright purplish-blue, the segments 8–12 mm. long, emarginate or rounded, aristulate; staminal column 4–5 mm. high, usually less than one-half the length of the perianth; anthers orange-yellow, 1.5–2 mm. long; ovary closely glandular-puberulent or tomentulose.

Additional material which has come to hand since the description of the single specimen on which the species was based permits the above more comprehensive description and extension of range from Louisiana to Mississippi, Arkansas and Texas. The mature fruit has not yet been seen.

MISSISSIPPI: Jackson, April 3, 1900; Wm. M. Canby.

LOUISIANA: Hammond, April 4, 1889; Lewena Gallup, "Pine lands;" type in the U. S. Nat. herb.; Opelousas, April 3, 1900; Washington, April, 8, 1900, dry soil; Biltmore herb.

ARKANSAS: Prescott, April 8, 1900; B. F. Bush, "common on prairie."

INDIAN TERRITORY: Muscogee, April, 1891, M. A. Carleton.

19. SISYRINCHIUM LANGLOISII Greene

Suberect or ascending in loose tufts, 6 10 cm. high from a cluster of delicate fibrous roots, slightly fibrillate at base, dull green, turning dark when dry; leaves firm, almost capillary, mostly .25–.5 mm. wide, the broadest becoming 1 mm. wide, equalling or shorter than the stems, slenderly tapering to a somewhat indurated point, closely striate-nerved, the edges smooth; stem-leaves subequal with the peduncles; stems equally slender with the leaves, the firm narrow margins smooth to denticulate; node often low down or subbasal, usually bearing 2–3 very slender, suberect, smooth or denticulate peduncles 4–9 cm. long; spathes about 1.5 cm. long, 1.5–2 mm. wide, the bracts rather stiff and firmly close-nerved, narrowly attenuate, subequal or the outer one slightly longer, sometimes becoming 2 cm. long, its margins narrowly hyaline and connate for 4–5 mm. at base; inner scales brownish-tinged, about half the length of the bracts; flowers pale blue, on hair-like slenderly exserted pedicels; perianth less than 10 mm. long, the segments contracted or slightly emarginate at apex, mucronulate-aristulate; stamineal-column 4–5 mm. high, usually more than half the length of the perianth; anthers pale yellow, about 1 mm. long; ovary sparsely puberulent.

The above description is based on type specimens received from Professor Greene. Fruiting specimens from Texas referred here are taller, more erect and broader-leaved, becoming 24 cm. high, with the larger leaves 1.5 mm. wide; the capsules are globose to broadly oblong and 2–4 mm. high on flexuously spreading pedicels, their walls rather thin and transversely corrugate without lateral nerves; the seeds are .75 mm. in diameter, black, globose and rather deeply close-pitted.

Related to *S. furcatum* but smaller and more slender throughout, the leaves and bracts firmer and more attenuate and closely nerved, the pedicels more slender and exserted, the flowers smaller and paler, the stamineal-column relatively longer, anthers smaller.

LOUISIANA: St. Martin county, April 11, 1892, in full flower, Rev. A. B. Langlois, type in Herb. Prof. E. L. Greene; Texas, ex herb. George Thurber in herb. Gray; Drummond in herb. Columbia Univ., and Acad. Nat. Sci. Philadelphia.

20. **Sisyrinchium Bushii** sp. nov.

Growing in small, more or less spreading or suberect tufts, 6–15 cm. high, rather pale dull-green, darkening somewhat when dry,

sometimes minutely scabrous, base of young tufts often chaffy with the remains of dead leaves or finally loosely fibrillose; roots simple. Basal leaves shorter than or nearly equalling the tufts, erect or ascending, firmly close-nerved, mostly 1.5–2 mm. wide, acute with finally hardened tip, the edges smooth or cartilaginous-denticulate; stems erect or ascending or the outer ones spreading and geniculate at the node, 1–2 mm. wide, the firm, narrow margins cartilaginous-denticulate or ciliolate; nodes 1–2, the lower one mostly near the base of the stem; stem-leaves firmly erect, the lower one relatively elongated, the upper subequal with the 2–4 approximate peduncles; spathes 12–20 mm. long, the bracts equal or the outer one often, the inner sometimes, slightly the longer, mostly denticulate on the keels, closely many-nerved, acute, sometimes narrowly prolonged, the edges rather broadly white-hyaline, especially on the inner bract which may be scarious-obtuse at the apex; outer bract connate for 3–5 mm. at base; the bracts, leaves and stem sometimes obscurely roughened with minute points; inner scales equalling the bracts or nearly so, brownish-tinged; flowers rather pale violet-blue on mostly well exserted erect or recurved pedicels; perianth 8–12 mm. long, the segments short-aristulate, contracted at the apex or slightly emarginate; column 4–6 mm. high, one-half or more the length of the corolla; anthers nearly or quite 2 mm. long; ovary puberulent to glabrate; capsules apparently globose or suberect on much recurved pedicels.

A small, tufted, subspreading species near *S. varians* but, besides difference in size and habit, firmer and more glaucous, the leaves more strongly close-nerved, the first node much lower on the stem, the stamineal-column relatively longer with larger anthers; the ovary mostly puberulent.

Named for Mr. B. F. Bush, the collector of the type specimens as well as of several other Texas species here first described.

INDIAN TERRITORY: Sapulpa, April 29, 1895, B. F. Bush, no. 971, herb. Columbia Univ., herb. Biltmore, herb. Mo. Bot. Gard. Dr. Edward Palmer, 1868, no. 336, U. S. Nat. herb. and herb. Torrey.

TEXAS: Herb. Torrey; Austin, April 30, 1898, Prof. W. L. Bray; Leonard, Collin county, May 1, 1886; J. H. Merrill, herb. Columbia Univ., Dallas, April 15, 1900, B. F. Bush.

21. **Sisyrinchium Canbyi** sp. nov.

Growing in very small tufts of several stiffly ascending stems 4–6 cm. high, dull glaucescent green. Leaves extremely narrow, mostly

0.5 mm. wide, stiff, prominently fine-nerved, the edges, as are those of the stem and peduncles, finely cartilaginous-denticulate, the tips somewhat obtuse; stems not broader than the leaves, narrowly two-edged, sometimes simple, but mostly branched about the middle into two erectly-ascending, often slightly curved peduncles 1.5–2.5 cm. long, the subtending leaf not surpassing the peduncles; spathes narrowly oblong, narrowed to each end, the acute or obtuse bracts 10–12 mm. long, or the outer one becoming linear-attenuate and 15 mm. long, rather prominently and closely fine-nerved, the keels denticulate, the inner margins of outer bract rather broadly white-hyaline below; silvery and brownish-tinged, nearly equalling the bracts; flowers small, on distinctly exserted pedicels, bright purplish-blue, the segments rather narrow and close-nerved, sharp-mucronulate, 6–8 mm. long; stamineal-column 3–4 mm. high; anthers about 1 mm. long; ovary glabrous or glabrate.

Columbia, Texas, March 25, 1900, Wm. M. Canby.

A curious little plant, the smallest of our species except *S. exile*, based on a single specimen sent me by Mr. Canby in a sheet with reduced examples of *S. flaccidum*, a very different plant. It suggests a depauperate state of *S. Bushii*, but differs in much narrower, more definitely fine-denticulate leaves and stiffly subspreading habit, smaller, deeper colored flowers, with very short stamineal-column, and much smaller anthers.

22. **Sisyrinchium colubriferum** sp. nov.

Suberect or spreading in leafy tufts 20 cm. or more high, sparsely loose-fibrillose at base, dull green, turning brownish-green, mostly purplish at the nodes, roots simple, stiff and slender. Leaves broad and thin, perceptibly narrowed towards the base, sometimes surpassing the peduncles, 2–7 mm. wide, not very closely many-nerved, acutely pointed, the edges mostly smooth; stems numerous, branched from near the outcurved or suberect base, the internodes and often compound branches more or less stiffly sinuous, broadly thin-winged, 2–5 mm. wide, the edges finely denticulate-serrulate; peduncles in clusters of 3–4, numerous by reason of the compound stems, mostly curved, 5–10 cm. long, .75–1.5 mm. wide, approximate or somewhat diverging, denticulate; spathes narrowed to each end, the bracts acuminate, thin, closely many-nerved, the outer one a little longer than the inner, its margins white-hyaline below, connate for 2–3 mm. at base; scales brownish, three-quarters the length of the inner bract or longer; flowers on slender more or less exserted or slightly spreading pedicels;

perianth light violet-blue, the obovate or obovate-oblong segments about 10 mm. long, mostly retuse, mucronate; stamineal-column short, 4 mm. high; anthers 1.5 mm. long; ovary glabrous; capsules on more or less spreading pedicels, 4 mm. or more high, the valves more or less distinctly trinervate.

TEXAS: Columbia, Brazoria county, April 9, 1899, "common on prairie," B. F. Bush, no. 66.

A well-characterized species of very distinct habit by reason of its widely sinuous and compound, broadly-leaved stems and branches and numerous interclustered peduncles.

23. **Sisyrinchium Helleri** sp. nov.

Spreading or suberect in loosely many-stemmed tufts, dull green or glaucescent, turning dark when dry, roots long and slender. Basal leaves about half the length of the stems, 1–2 mm. wide, thin, rather openly weak-nerved when full grown, narrowly acute, mostly smooth-edged; stems mostly shorter than the peduncles, usually spreading or ascending, and geniculate at the one or two nodes, 8–20 cm. long over all, 1–1.5 mm. wide, narrowly firm margined, the edges smooth to erect-denticulate; peduncles 2–4, more or less unequal and diverging, 3–9 cm. long, sometimes twice the length of the stem, mostly 1 mm. or less wide, smooth-edged or nearly so; stem-leaves usually much shorter than the peduncles, rather abruptly broadened and loosely clasping below, the lower margins conspicuously white-hyaline; spathes mostly deflected, broadest about the middle and somewhat lenticular in outline, mostly 15–18 mm. long and 3–5 mm. wide, the bracts closely fine-striate with broadly white-hyaline margins, sharply acuminate or sometimes obtuse-pointed, the more convex boat-shaped inner one usually a little surpassing the outer which is connate for 2–4 mm. at base; scales brownish, equalling the bracts or nearly so: flowers on erect pedicels 15–25 mm. long, equalling or much surpassing the bracts; perianth rather deep, bright blue, 10 mm. or more long, the segments obovate or narrower, scarcely or not emarginate, mucronate-aristulate; stamineal-column 4–5 mm. high; anthers small, about 1 mm. long; capsules on more or less spreading or recurved pedicels, rather large, subglobose and 4–6 mm. high or becoming obovoid-oblong and 7 mm. high, the dark-brown valves without nerves; seeds not fully mature, rather large, 2–5 in each cell.

TEXAS: Nueces county, along Corpus Christi Bay, April 9–12, 1894, A. A. Heller. Type, "Plants of Southern Texas, no. 1552."

Especially characterized by spreading habit, numerous narrow stems and narrow leaves, relatively broad spathes with longer inner bract, large capsules.

24. **Sisyrinchium flaccidum** sp. nov.

Forming small many-stemmed usually somewhat diffuse or spreading tufts, or sometimes erect, 10–20 cm. high, rather deep green and scarcely if at all glaucescent, turning dark when dry, roots very slender. Basal leaves numerous, frequently equalling the height of the plant, thin and lax with delicate well-separated nerves, 1–3 mm. wide, tapering-acute, the edges smooth; stem-leaves elongated but not usually surpassing the terminal peduncles; stems weak, very slender, .5–1.5 mm. wide, two-edged or narrowly thin-winged, the edges smooth or sometimes partially denticulate-roughened, some of them usually outcurved or spreading at least below and geniculate at the nodes; nodes mostly two the lower one often subbasal, but sometimes high up; peduncles very straight and slender, often appearing filiform, usually only one from the lower node and two or three from the upper one, erect or nearly so, 4–9 cm. long, spathes narrow, somewhat tapering to the base, straight or deflected; bracts membranous, delicately many-nerved, acute to narrowly acuminate, subequal or the outer one slightly prolonged, 13–20 mm. rarely 25 mm. long, the outer one narrowly white-hyaline on the edges, united at base for 3–5 mm.; inner scales ½–¾ the length of the bracts, silvery and brownish tinged; flowers bright purplish-blue, the segments 8–10 mm. long, mucronate-aristulate, mostly not emarginate; staminal-column 5 mm. high, the anthers 1.5 mm. long; ovary strictly glabrous.

Eastern Texas in rich woods and on prairies, beginning to flower before the end of March. Common about Columbia, the only locality from which I have received it.

Columbia, Brazoria county, April 6–7, 1899, March 26–28, 1900, no. 466 type, B. F. Bush; March 25, 1900, Wm. M. Canby.

A small, thin-leaved species of lax habit apparently nearest to *S. furcatum* but differing in weaker stems, thinner longer leaves, almost perfect smoothness, duller green color and glabrous ovary.

25. SISYRINCHIUM MINUS Engelm. & Gray, Bost. Journ. Nat. Hist. 5: 263. 1845

Diffusely spreading or ascending in loose tufts, green or slightly glaucescent, usually turning very dark when dry; roots weak and

slender, pale and fibrillate. Stems from 5–25 cm. long, branched and leafy from near the base, more or less flexuose and geniculate from node to node as are the longer branches, the nodes 2–6, the branches and peduncles more or less outcurved or diverging. Leaves very thin, semi-transparent, delicately nerved, the main nerves rather distant, the faint alternating series often in groups of two or three and with scattered cross-reticulations, 2–7 cm. long, 1–4 mm. wide, the edges denticulate-roughened to serrulate, acuminate; stem-leaves often incurved-subfalcate; basal leaves few and early withering: stem merely margined or narrowly winged, sometimes almost subterete at base, the edges denticulate-roughened to smooth; peduncles short, 2–6 cm. long, the ultimate ones a diverging pair or solitary; spathes flattened, the bracts very unequal, somewhat abruptly acute or obtusely pointed, the outer one leaf-like, 13–35 mm. long, the edges white-hyaline below, connate for 3–5 mm. at base; inner bract 10–20 mm. long, less foliaceous than the outer one; scales short, commonly less than half the length of the shorter bract, brownish-tinged; flowers 2–6 on hair-like, slightly exserted peduncles, mostly flexuously spreading above; perianth very small, 5–6 mm. long, said to be reddish-purple or yellowish-white, usually colorless in dried specimens, the segments not usually emarginate, slenderly acuminate and aristulate, delicately 3–5-nerved; stamineal-column 2.5–3 mm. high; anthers .05 mm. long: ovary thinly puberulent; capsules light brown, corrugate from the narrow rows of 4–6 seeds, oblong, 3–5 mm. long, 2–3 mm. wide; seeds very small, black, subglobose to ellipsoid, 5.0–.75 mm. in diameter, strongly pitted, umbilicate.

Eastern and central Texas to Louisiana, in damp soil and low prairies, flowering in March and April. Apparently the commonest species of Texas.

TEXAS: Bexar county, San Antonio, V. Havard, 1884; Gillespie county, G. Jermy; Brazoria county, Columbia, B. F. Bush, 1899; Wm. M. Canby, 1900; Chenango, Bush, 1899; Fort Bend county, Richmond, W. F. Bray, 1899; Harris county, Houston, Elihu Hall, 1892, no. 637; Harris county, Harrisburg, I. F. Ivor, 1875; Hockley, T. W. Thurow, 1893; M. A. Carleton, 1891; Dallas county, Dallas, J. Reverchon, Curtiss, North Am. Plants, no. 2860; J. Reverchon, 1874, 1880; also Lindheimer, 1844, no. 313; Drummond, no. 408; Mex. Boundary Survey, no. 1445.

LOUISIANA: Baton Rouge, 1874, G. F. Good.